

**(ALL BATCHES)**

DATE: 16.10.2018

MAXIMUM MARKS:100

TIMING: 3¼Hours

**SECTION - A****Q. No. 1 is compulsory.**

Candidates are also required to answer any four questions from the remaining five questions.

In case, any candidate answers extra question(s)/sub-question(s) over and above the required number, then only the requisite number of questions first answered in the answer book shall be valued and subsequent extra question(s) answered shall be ignored.

Working Notes should form part of the respective answer.

**Answer: 1****(a)**

Particulars	(Rs.)
Sales	24,00,000
Less: Variable cost	12,00,000
Contribution	12,00,000
Less: Fixed cost	10,00,000
EBIT	2,00,000
Less: Interest	1,00,000
EBT	1,00,000
Less: Tax (50%)	50,000
EAT	50,000
No. of equity shares	10,000
EPS	5

$$(a) \quad \text{Operating Leverage} = \frac{12,00,000}{2,00,000} = 6 \text{ times } (\frac{3}{4}\text{M})$$

$$(b) \quad \text{Financial Leverage} = \frac{2,00,000}{1,00,000} = 2 \text{ times } (1\text{M})$$

$$(c) \quad \text{Combined Leverage} = \text{OL} \times \text{FL} = 6 \times 2 = 12 \text{ times. } (1\text{M})$$

$$(d) \quad \text{R.O.I} = \frac{50,000}{10,00,000} \times 100 = 5 \%$$

Here ROI is calculated as ROE i.e.  $\frac{\text{EAT} - \text{Pref. Dividend}}{\text{Equity shareholders' fund}}$  } **1M**

$$(e) \quad \text{Operating Leverage} = 6$$

$$6 = \frac{\Delta \text{EBIT}}{0.25}$$

$$\Delta \text{EBIT} = \frac{6 \times 1}{4} = 1.5$$

Increase in EBIT = Rs. 2,00,000  $\times$  1.5 = Rs. 3,00,000

New EBIT = 5,00,000

(b) (a) Dividend yield on the equity shares } **1M**  

$$= \frac{\text{Dividend per share}}{\text{Market price per share}} \times 100 = \frac{\text{Rs. 2 (= 0.20} \times \text{Rs. 10)}}{\text{Rs. 40}} \times 100 = 5 \text{ percent}$$

(b) Dividend coverage ratio

(i) Preference = 
$$\frac{\text{Profit after taxes}}{\text{Dividend payable to preference shareholders}} = \frac{\text{Rs. 2,70,000}}{\text{Rs. 27,000 (= 0.09} \times \text{Rs. 3,00,000)}} = 10 \text{ times}$$
 } **1M**

(ii) Equity = 
$$\frac{\text{Profit after taxes - Preference share dividend}}{\text{Dividend payable to equity shareholders at current rate of Rs. 2 per share}} = \frac{\text{Rs. 2,70,000} - \text{Rs. 27,000}}{\text{Rs. 1,60,000 (80,000 shares} \times \text{Rs. 2)}} = 1.52 \text{ times}$$
 } **1M**

(c) Earnings per equity share } **1M**  

$$= \frac{\text{Earnings available to equity shareholders}}{\text{Number of equity shares outstanding}} = \frac{\text{Rs. 2,43,000}}{80,000} = \text{Rs. 3.04 per share}$$

(d) Price-earning (P/E) ratio = 
$$\frac{\text{Market price per share}}{\text{Equity per share}} = \frac{\text{Rs. 40}}{\text{Rs. 3.04}} = 13.2 \text{ times}$$
 } **1M**

(c)

	Company	
	M Ltd.	N Ltd.
EBIT (NOI)	Rs. 20,000	Rs. 20,000
Debt (D)	Rs. 1,00,000	---
$K_e$	11.50%	10%
$K_d$	7%	---

Value of equity (S) = 
$$\frac{\text{NOI - Interest}}{\text{Cost of equity}}$$

$$S_M = \frac{20,000 - 7,000}{11.50\%} = \text{Rs. 1,13,043}$$

$$S_N = \frac{20,000}{10\%} = \text{Rs. 2,00,000}$$

$$V_M = 1,13,043 + 1,00,000 \{V = S + D\} = \text{Rs. 2,13,043 (1M)}$$

$$V_N = \text{Rs. 2,00,000 (1M)}$$

**Arbitrage Process**

If you have 10% shares of M Ltd., your value of investment in equity shares is 10% of

Rs.1,13,043 i.e. Rs. 11,304.30 and return will be 10% of (Rs.20,000 – Rs.7,000) = Rs. 1,300.

Alternate Strategy will be:

Sell your 10% share of levered firm for Rs. 11,304.30 and borrow 10% of levered firms debt i.e. 10% of Rs. 1,00,000 and invest the money i.e. 10% in unlevered firms stock: Total resources /Money we have = Rs.11,304.30 + Rs.10,000 = Rs.21,304.3 and you invest

10% of Rs.2,00,000 = Rs. 20,000

Surplus cash available with you is = Rs.21,304.3 – Rs.20,000 = Rs. 1,304.3

Your return = 10% EBIT of unlevered firm – Interest to be paid on borrowed funds i.e. = 10% of Rs. 20,000 – 7% of Rs. 10,000 = Rs.2,000 – Rs.700 = Rs. 1,300 i.e. your return is same i.e. Rs. 1,300 which you are getting from N Ltd. before investing in M Ltd. but still you have Rs. 1,304.3 excess money available with you. Hence, you are better off by doing arbitrage

3M

**(d) Calculation of Indifference point between the two alternatives of financing.**

Alternative-I By issue of 6,00,000 equity shares of Rs.10 each amounting to Rs.60 lakhs. No financial charges are involved.

Alternative-II By raising the funds in the following way:

Debt = Rs. 40 lakhs

Equity = Rs. 20 lakhs (2,00,000 equity shares of Rs.10 each)

Interest payable on debt =  $40,00,000 \times \frac{18}{100} = \text{Rs. } 7,20,000$  (1/2M)

The difference point between the two alternatives is calculated by:

$$\frac{(EBIT - I_1)(1 - T)}{E_1} = \frac{(EBIT - I_2)(1 - T)}{E_2}$$

Where,

EBIT = Earnings before interest and taxes

I<sub>1</sub> = Interest charges in Alternative-I

I<sub>2</sub> = Interest charges in Alternative-II

T = Tax rate

E<sub>1</sub> = No. of Equity shares in Alternative-I

E<sub>2</sub> = No. of Equity shares in Alternative-II

1 1/2M

Putting the values, the break-even point would be as follows:

$$\frac{(EBIT - 0)(1 - 0.40)}{6,00,000} = \frac{(EBIT - 7,20,000)(1 - 0.40)}{2,00,000}$$

$$\frac{(EBIT)(0.60)}{6,00,000} = \frac{(EBIT - 7,20,000)(0.60)}{2,00,000}$$

$$\frac{(EBIT)(0.60)}{3} = \frac{(0.60)(EBIT - 7,20,000)}{1}$$

2 1/2M

$$EBIT = 3EBIT - 21,60,000$$

$$-2 EBIT = -21,60,000$$

$$EBIT = \frac{21,60,000}{2}$$

$$EBIT = \text{Rs.}10,80,000$$

Therefore, at EBIT of Rs.10,80,000 earnings per share for the two alternatives is equal.

1/2M

**Answer: 2**

- (a) (a) Cash cycle = 45 days + 75 days – 30 days = 90 days (3 months) **(1M)**  
 Cash turnover = 12 months (360 days)/3 months (90 days) = 4. **(1M)**
- (b) Minimum operating cash = Total operating annual outlay/cash turnover, that is, Rs. 120 lakhs/4 = Rs. 30 lakhs. **(1M)**
- (c) Cash cycle = 45 days + 45 days – 30 days = 60 days (2 months).  
 Cash turnover = 12 months (360 days)/2 months (60 days) = 6.  
 Minimum operating cash = Rs. 120 lakhs/6 = Rs. 20 lakhs.  
 Reduction in investments = Rs. 30 lakhs – Rs. 20 lakhs = Rs. 10 lakhs.  
 Savings = 0.10 × Rs. 10 lakhs = Rs. 1 lakh. **2M**

**(b) Navya Ltd.**

(i) Walter’s model is given by -

$$P = \frac{D + (E - D)(r / K_e)}{K_e}$$

Where, P = Market price per share,

E = Earnings per share = Rs.20,00,000 ÷ 4,00,000 = Rs. 5

D = Dividend per share = 60% of 5 = Rs. 3

r = Return earned on investment = 15%

$K_e$  = Cost of equity capital = 12%

$$\therefore P = \frac{3 + (5 - 3) \times \frac{0.15}{0.12}}{0.12} = \frac{3 + 2 \times \frac{0.15}{0.12}}{0.12} = \text{Rs. } 45.83$$

(ii) According to Walter’s model when the return on investment is more than the cost of equity capital, the price per share increases as the dividend pay-out ratio decreases. Hence, the optimum dividend pay-out ratio in this case is Nil. So, at a payout ratio of zero, the market value of the company’s share will be:- **2M**

$$\frac{0 + (5 - 0) \times \frac{0.15}{0.12}}{0.12} = \text{Rs. } 52.08$$

**Answer: 3**

(i) Cost of new debt **1M**

$$K_d = \frac{I(1 - t)}{P_0} = \frac{16(1 - 0.5)}{96} = 0.0833$$

(ii) Cost of new preference shares **1M**

$$K_p = \frac{PD}{P_0} = \frac{1.1}{9.2} = 0.12$$

(iii) Cost of new equity shares **1M**

$$K_e = \frac{D_1}{P_0} + g = \frac{1.18}{23.60} + 0.10 = 0.05 + 0.10 = 0.15$$

Calculation of  $D_1$

$D_1 = 50\%$  of 2013 EPS =  $50\%$  of 2.36 = Rs. 1.18

(B) Calculation of marginal cost of capital

Type of Capital (1)	Proportion (2)	Specific Cost (3)	Product (2) × (3) = (4)
Debenture	0.15	0.0833	0.0125
Preference Share	0.05	0.12	0.0060
Equity Share	0.80	0.15	0.1200
Marginal cost of capital			0.1385

2M

(C) The company can spend the following amount without increasing marginal cost of capital and without selling the new shares:

Retained earnings =  $(0.50) (2.36 \times 10,000) = \text{Rs. } 11,800$

The ordinary equity (Retained earnings in this case) is 80% of total capital 11,800 = 80% of Total Capital

$\therefore$  Capital investment before issuing equity =  $\frac{\text{Rs. } 11,800}{0.80} = \text{Rs. } 14,750$

2M

(D) If the company spends in excess of Rs. 14,750 it will have to issue new shares.

$\therefore$  Capital investment before issuing equity =  $\frac{\text{Rs. } 1.18}{20} + 0.10 = 0.159$

1M

The marginal cost of capital will be:

Type of Capital (1)	Proportion (2)	Specific Cost (3)	Product (2) × (3) = (4)
Debentures	0.15	0.0833	0.0125
Preference Shares	0.05	0.1200	0.0060
Equity Shares (New)	0.80	0.1590	0.1272
			0.1457

2M

Answer: 4

**Statement showing the requirements of Working Capital**

Particulars	(Rs.)	(Rs.)
A. Current Assets:		
Inventory:		
Stock of Raw material (Rs.96,600 × 2/12)	(1/2M) 16,100	
Stock of Work-in-progress (As per Working Note)	(1/2M) 16,350	
Stock of Finished goods (Rs.1,46,500 × 10/100)	(1/2M) 14,650	
Receivables (Debtors) (Rs.1,27,080 × 2/12)	(1/2M) 21,180	
Cash in Hand	(1/2M) 8,000	
Prepaid Expenses:		
Wages & Mfg. Expenses (Rs.66,250 × 1/12)	(1/2M) 5,521	
Administrative expenses (Rs.14,000 × 1/12)	(1/2M) 1,167	
Selling & Distribution Expenses (Rs.13,000 × 1/12)	(1/2M) 1,083	
Advance taxes paid {(70% of Rs.10,000) × 3/12}	(1/2M) 1,750	
Gross Working Capital	85,801	85,801
B. Current Liabilities:		



Payables for Raw materials (Rs.1,12,700 × 1.5/12)	(½M) 14,088	
Provision for Taxation (Net of Advance Tax) (Rs.10,000 × 30/100)	(½M) 3,000	
Total Current Liabilities	17,088	17,088
C. Excess of CA over CL		68,713
Add: 10% for unforeseen contingencies		(½M) 6,871
Net Working Capital requirements		(½M) 75,584

**Working Notes:**

(i) Calculation of Stock of Work-in-progress

Particulars	(Rs.)	} <b>1M</b>
Raw Material (Rs. 84,000 × 15%)	12,600	
Wages & Mfg. Expenses (Rs.62,500 × 15% × 40%)	3,750	
Total	16,350	

(ii) Calculation of Stock of Finished Goods and Cost of Sales

Particulars	(Rs.)	} <b>1½M</b>
Direct material Cost [Rs. 84,000 + Rs. 12,600]	96,600	
Wages & Mfg. Expenses [Rs. 62,500 + Rs. 3,750]	66,250	
Depreciation	0	
Gross Factory Cost	1,62,850	
Less: Closing W.I.P	(16,350)	
Cost of goods produced	1,46,500	
Add: Administrative Expenses	14,000	
	1,60,500	
Less: Closing stock	14,650	
Cost of Goods Sold	1,45,850	
Add: Selling and Distribution Expenses	13,000	
Total Cash Cost of Sales	1,58,850	
Debtors (80% of cash cost of sales)	1,27,080	

(iii) Calculation of Credit Purchase

Particulars	(Rs.)	} <b>1M</b>
Raw material consumed	96,600	
Add: Closing Stock	16,100	
Less: Opening Stock	-	
Purchases	1,12,700	

**Answer: 5**

(i) Statement showing Working Capital for each policy

(Rs. in crores)

	Working Capital Policy		
	Conservative	Moderate	Aggressive
Current Assets: (i)	4.50	3.90	2.60
Fixed Assets: (ii)	2.60	2.60	2.60
Total Assets: (iii)	7.10	6.50	5.20
Current liabilities: (iv)	2.34	2.34	2.34
Net Worth: (v)=(iii)-(iv)	4.76	4.16	2.86
Total liabilities: (iv)+(v)	7.10	6.50	5.20

Estimated Sales: (vi)	12.30	11.50	10.00	
EBIT: (vii)	1.23	1.15	1.00	
(a) Net working capital position: (i)-(iv)	2.16	1.56	0.26	1½M
(b) Rate of return: (vii)/(iii)	17.3%	17.7%	19.2%	1½M
(c) Current ratio: (i)/(iv)	1.92	1.67	1.11	1½M

(ii) Statement Showing Effect of Alternative Financing Policy

(Rs. in crores)

Financing Policy	Conservative	Moderate	Aggressive	
Current Assets: (i)	3.90	3.90	3.90	1½M
Fixed Assets: (ii)	2.60	2.60	2.60	
Total Assets: (iii)	6.50	6.50	6.50	
Current Liabilities: (iv)	2.34	2.34	2.34	
Short term Debt: (v)	0.54	1.00	1.50	
Long term Debt: (vi)	1.12	0.66	0.16	
Equity Capital (vii)	2.50	2.50	2.50	
Total liabilities	6.50	6.50	6.50	
Forecasted Sales	11.50	11.50	11.50	
EBIT: (viii)	1.15	1.15	1.15	
Less: Interest short-term debt: (ix)	0.06 (12% of Rs. 0.54)	0.12 (12% of Rs. 1.00)	0.18 (12% of Rs. 1.50)	
Long term debt: (x)	0.18 (16% of Rs. 1.12)	0.11 (16% of Rs. 0.66)	0.03 (16% of Rs. 0.16)	
Earning before tax: (xi) - (ix + x)	0.91	0.92	0.94	
Tax @ 35%	(0.32)	(0.32)	(0.32)	
Earning after tax: (xii)	0.59	0.60	0.61	
(a) Net Working Capital Position: (i) - [(iv)+(v)]	1.02	0.56	0.06	1½M
(b) Rate of return on Equity shareholders' capital : (xii)/(vii)	23.6%	24%	24.4%	1½M
(c) Current Ratio: [(i)/(iv)+(v)]	1.35	1.17	1.02	1½M

**Answer: 6**

**(a) Global Depository Receipts (GDRs):** These are negotiable certificate held in the bank of one country representing a specific number of shares of a stock traded on the exchange of another country. These financial instruments are used by companies to raise capital in either dollars or Euros. These are mainly traded in European countries and particularly in London. } 2½M

**(b) Indian Depository Receipts (IDRs):** The concept of the depository receipt mechanism which is used to raise funds in foreign currency has been applied in the Indian Capital Market through the issue of Indian Depository Receipts (IDRs). IDRs are similar to ADRs/GDRs in the sense that foreign companies can issue IDRs to raise funds from the Indian Capital Market in the same lines as an Indian company uses ADRs/GDRs to raise foreign capital. The IDRs are listed and traded in India in the same way as other Indian securities are traded. } 2½M

**(c) Meaning of Venture Capital Financing :** The venture capital financing refers to financing of new high risky venture promoted by qualified entrepreneurs who lack experience and funds to give shape to their ideas. In broad sense, under venture capital financing venture capitalist make investment to purchase equity or debt securities from inexperienced entrepreneurs who undertake highly risky ventures with a potential of success. } **2½M**

**(d) Plain Vanilla Bond:**

- The issuer would pay the principal amount along with the interest rate. } **½M**
- This type of bond would not have any options. } **1M**
- This bond can be issued in the form of discounted bond or can be issued in the form of coupon bearing bond. } **1M**

### SECTION - B

**Q. No. 7 is compulsory.**

**Answer any three from the rest.**

**In case, any candidate answers extra question(s)/sub-question(s) over and above the required number, then only the requisite number of questions first answered in the answer book shall be valued and subsequent extra question(s) answered shall be ignored.**

**Working Notes should form part of the respective answer.**

**Answer: 7**

(a) The value of the multiplier (k) is found by relating the change in output ( $\Delta Y$ ) to the initial change in aggregate spending. The value of the multiplier is directly related to the level of MPC, i.e., the greater the MPC, the larger the value of the multiplier. The value of the multiplier is found from the equation  $k = 1 / (1 - MPC)$ .

- (i) Thus, when MPC is 0.2, the multiplier is 1.25
  - (ii) When MPC is 0.5, the multiplier is 2
  - (iii) When MPC = 0.80, the multiplier is 5
- } **1 Marks Each**

(b)

**(i) GDPMP = C + I + G + (X - Z)**  
 $110 + 20 + (70 - 20) + (20 - 50) = 150$  million } **1M**

**(ii) GNPMP = GDP at market prices + net property income**  
 from abroad  $150 + 10 = 160$  million } **1M**

**(iii) GDP at factor cost = GDP market prices - indirect taxes**  
 $150 - 30 = 120$  million } **1M**

**(iv) Per Capita Income =  $\frac{\text{GNP at Factor Cost}}{\text{Population}}$  =  $(160\text{m} - 30\text{m}) / 0.5$**   
 $= 130 / 0.5 = 260$  million } **1M**



- (c) To prevent sanitary and phytosanitary measures from being used for arbitrary or unjustifiable discrimination or for camouflaged restraint on international trade and to minimize their adverse effects on trade. } **3M**

**Answer: 8**

- (a). Also known as a contractionary gap, the difference between the actual aggregate demand and the aggregate demand which is required to establish the equilibrium at full employment level of income. } **2M**

- (b) Negative effect fiscal policy when spending by government in an economy replaces private spending -money from private sector is 'crowded out' to the public sector- decline in private spending - fiscal policy becomes ineffective } **3M**

- (c) The Credit Multiplier also referred to as the deposit multiplier or the deposit expansion multiplier, describes the amount of additional money created by commercial bank through the process of lending the available money it has in excess of the central bank's reserve requirements. It is the reciprocal of the required reserve ratio. If reserve ratio is 20%, then credit multiplier =  $1/0.20 = 5$ . } **2M**

$$\text{Credit Multiplier} = \frac{1}{\text{Required Reserve Ratio}} \quad \text{ } \mathbf{1M}$$

- (d) Direct instruments presuppose one-to-one correspondence between the instrument (such as a credit ceiling) and the policy objective (such as a specific amount of domestic credit outstanding) ,while indirect instruments act through the market by adjusting the underlying demand for, and supply of, bank reserves } **2M**

**Answer: 9**

- (a) Reserve Money=Currency in Circulation + Bankers' Deposits with RBI+ 'Other' Deposits with RBI  $15428.40+4596.18+183.30= 20205.68$  } **2M**

- (b) Income Method  
 $GDP_{MP} = \text{Employee compensation (wages and salaries + employers' contribution towards social security schemes) + profits + rent + interest + mixed income + depreciation + net indirect taxes (Indirect taxes - subsidies)}$   
 $GDP_{MP} = 6,508+ 34 + 1060 + 806+ 682 + 1,000 + 800 = 10,890$   
 $GNP_{MP} = GDP_{MP} + NFIA =10,890+ 40 =10,930$  } **1½M**

Expenditure Method

$$Y = C + I + G + (X - M)$$

$$Y = 7314 + 1482 + 2196+ (1346 -1408)$$

$$Y = (7314 + 1482 + 2196) - 62$$

$$Y = 10930$$

$$GNP_{MP} = GDP_{MP} + NFIA =10,890+ 40 =10,930$$
 } **1½M**

- (c) Common access resources or common pool resources are a special class of impure public goods which are non-excludable as people cannot be excluded from using them. These are rival in nature and their consumption lessens the benefits available for others. This rival nature of common resources is what distinguishes them } **1M**

from pure public goods, which exhibit both non-excludability and non-rivalry in consumption. They are generally available free of charge. Some important natural resources fall into this category.

Since price mechanism does not apply to common resources, producers and consumers do not pay for these resources and therefore, they overuse them and cause their depletion and degradation. This creates threat to the sustainability of these resources and, therefore, the availability of common access resources for future generations. **1M**

Economists use the term 'tragedy of the commons' to describe the problem which occurs when rivalrous but non excludable goods are overused, to the disadvantage of the entire world. **2M**

Examples of common access resources are fisheries, common pastures, rivers, sea, backwaters biodiversity etc. The earth's atmosphere is perhaps the best example. Emissions of carbon dioxide and other greenhouse gases have led to the depletion of the ozone layer endangering environmental sustainability. Although nations are aware of the fact that reduced global warming would benefit everyone, they have an incentive to free ride, with the result that nothing positive is likely to be done to correct the problem. . **1M**

**Answer:10**

**(a)** (i) A country tends to specialize in the export of a commodity whose production requires intensive use of its abundant resources and imports a commodity whose production requires intensive use of its scarce resources. **3M**

(ii) The ability of a country to produce a good at a lower cost, in terms of labour, than another country. **2M**

**(b)**

- (a) Negative externality, overproduction
  - (b) Negative externality, environmental externality, wear and tear of roads, increased fuel consumption, added insecurity imposed on others
  - (c) Negative externality, overproduction
  - (d) Public good, positive externality
  - (e) Negative externality
  - (f) Unpatented computer programs have characteristics very much like a public good and therefore market failure.
  - (g) The problem of the commons –The tragedy of commons
  - (h) Sirens have all characteristics of public goods. People will free ride – market failure.
  - (i) Positive externality, free riding.
  - (j) Negative externality.
- (1/2 Mark Each point)**

**Answer: 11**

**(a)** A direct quote (European Currency Quotation) is the number of units of a local currency exchangeable for one unit of a foreign currency. For example, Rs 66/US\$. An indirect quote (American Currency Quotation).is the number of units of a foreign currency exchangeable for one unit of local currency; for example: \$ 0.0151 per rupee. **3M**

- (b) SPS measures are applied to protect human, animal or plant life from risks arising from additives, pests, contaminants, toxins or disease-causing organisms and to protect biodiversity **2M**
- (c) Possible due to capital intensive technology which is inappropriate for a labour abundant country; displacement of labour if industries fail or are forced to close down } **3M**
- (d) The main goals of tariffs are to raise revenue for the government and more importantly to protect the domestic import-competing industries. } **2M**

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